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ABSTRACT

These indexes, a set of measures of growth in syntactic fluency, are derived from the research in written syntax of Hunt and Christensen. They are a means of linguistic analysis of each T-unit (independent clause and its modifiers) in a writing sample. The indexes include: mean T-unit length; number of words in free modifiers, final position only; number of instances of words in intra T-unit coordination; number of instances of intra T-unit coordinations; total number of words in free modifiers, all positions; and total number of instances of free modifiers, all positions. The "all positions" designation includes free modifiers in the initial, medial, and final position within the T-unit. [This document is one of those reviewed in the Research Instruments Project (TRIP) monograph "Measures for Research and Evaluation in the English Language Arts" to be published by the Committee on Research of the National Council of Teachers of English in cooperation with the ERIC Clearinghouse on Reading and Communication Skills. A TRIP review which precedes the document its category (writing), title, author, date, and age range (elementary--postsecondary), and describes the instrument's purpose and physical characteristics.] (WR)

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CS 201 325

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Category: Writing

Title: Indexes of Syntactic Maturity (Dixon-Hunt-Christensen)

Author: Edward Dixon

Age Range: Elementary-Post Secondary

Description of Instrument:

Purpose: To measure growth in syntactic fluency.

Date of Construction: 1970

Physical Description: These indexes, a set of measures of growth in syntactic fluency, are derived from the research in written syntax of Hunt and Christensen. They are a means of linguistic analysis of each T-unit (independent clauses and their modifiers; see Hunt) in a writing sample. The indexes are the following: (1) mean T-unit length; (2) number of words in free modifiers, final position only; (3) number of instances of free modifiers, final position only; (4) number of words in intra T-unit coordinations; (5) number of instances of intra T-unit coordinations; (6) total number of words in free modifiers, all positions; and (7) total number of instances of free modifiers, all positions. The "all positions" designation includes free modifiers in the initial, medial, and final position within the T-unit. Except for mean T-unit length, all the indexes are based on Christensen's research. For this reason, this measure of fluency is nicely complementary to the Mellon measure, reviewed on p. 000 of this monograph.

Validity, Reliability, and Normative Data

The validity of these measures comes from their basis in the research of Hunt and Christensen. In addition, in Dixon's study they are shown

to be useful indexes or predictors of syntactic maturity.

No reliability data or rater agreement in using the indexes is reported. The assumption seems to be made, as in the Mellon report mentioned above, that the separate indexes are well-enough described and exemplified for a trained rater to achieve a high degree of accuracy and of conformance with other raters.

Normative data from school-age writers in an "industrial township" near Chicago and from seniors at Chicago State College are as follows:

(insert table here)

Ordering Information:

EDRS

Related Documents:

Dixon, Edward. Syntactic Indexes and Student Writing Performance. Unpublished doctoral dissertation, University of Chicago, 1970.

Dixon, Edward. "Syntactic Indexes and Student Writing Performance," Elementary English, 49 (May 1972), 714-716.

Christensen, Francis. Notes Toward a New Rhetoric. New York: Harper and Row, 1967.

Hunt, Kellogg. Grammatical Structures Written at Three Grade Levels. Urbana, Illinois: National Council of Teachers of English, Research Report No. 3, 1965.

TABLE II

VARIABLE MEANS AT EACH GRADE LEVEL

	1 MTUL	2 WFFO	3 IFFO	4 WCOR	5 ICOR	6 TFAX	7 TIFA
Grade 4	8.10349	1.30000	0.30000	37.34999	3.95000	17.95000	7.35000
Grade 8	10.69299	4.65000	0.85000	48.45000	5.50000	29.04999	7.45000
Grade 12	12.25349	19.59999	2.45000	54.89999	5.70000	41.25000	8.65000
Grade 16	13.330299	13.30000	2.00000	42.75000	5.15000	40.89999	8.55000

Hunt Index	1.	MTUL = Mean T-Unit Length
	2.	WFFO = Number of Words in Free modifiers, Final position Only
	3.	IFFO = Number of Instances of Free modifiers, Final position Only
Christensen Indexes	4.	WCOR = Number of Words in intra T-unit COoRdinations
	5.	ICOR = Number of Instances of intra T-unit COoRdinations
	6.	TFAX = Total number of words in Free modifiers, All positions (Total=initial and medial and final positions)
	7.	TIFA = Total number of Instances in Free modifiers All positions (Total=initial and medial and final positions)

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B. Procedures Used in Counting

This study excluded from the counts all direct discourse and interior monolog. Further, it excluded also what Hunt called "Garbles . . . any group of words that could not be understood by the investigators."[1] These are comparable to what Strickland and Loban call "mazes." For an exact discription of the procedures of partitioning the middle 200 words, see Appendix I.

The procedures in counting T-units followed the practice of Hunt. He demonstrated the value of the index as "promising" and then gave a name to the index as follows:

> A whole piece of writing could be sliced up into units of this sort, just as a rib pork roast is sliced off into chops. The person slicing need only be careful to cut where the joints come instead of cutting into a chunk of solid bone. There should be no trouble deciding whether an expression, if it is intelligible at all, goes with the preceding main clause or the following. An and between two main clauses would always go with the second clause, beginning it just as coordinating conjunctions so often begin the sentences of mature writers. A student's failure to put in periods where he should would not interfere with the slicing process unless the passage already was an unintelligible garble.
>
> Here is a sample to be sliced up. It is printed just as the fourth grader wrote it, except that the spelling is corrected. It is a whole theme, punctuated as one sentence, 68 words long. This one fourth grade sentence is four times as long as the average twelfth grade sentence.
>
> I like the movie we saw about Moby Dick the white whale the captain said if you can kill the white whale Moby Dick I will give this gold to the one that can do it and it is worth sixteen dollars they tried and tried but while they were trying they killed a whale and used the oil for the lamps they almost caught the white whale
>
> That same theme sliced off into these unnamed units appears below. A capital letter now begins each unit and a period ends each one. A slant line indicates the beginning of each new clause. One unit begins with an and,

---

[1] Hunt, Grammatical Structures, p. 6.

and another with a but. Each unit is grammatically capable of being considered a sentence. In fact, these units are the shortest grammatically allowable sentences into which the theme could be segmented. If it were segmented into units any shorter, some fragment would be created.

1. I like the movie/we saw about Moby Dick, the white whale.

2. The captain said/if you can kill the white whale, Moby Dick,/I will give this gold to the one/that can do it.

3. And it is worth sixteen dollars.

4. They tried and tried.

5. But/while they were trying/they killed a whale and used the oil for the lamps.

6. They almost caught the white whale.

As segmented above, several units contain only a single clause--a main clause, of course--like a simple sentence. There are several multi-clause units like complex sentences. In fact, the second unit is rather intricate, for within the main clause is embedded a noun clause and within it is both an adverbial if clause and an adjective clause. There are no units like compound sentences or compound-complex sentences, for such units must be cut into two or more parts so that each will contain only one main clause.

These units need a name. It would be simplest to call them "minimal sentences." However, the word "sentence" already has so many different meanings that misunderstanding would be certain to result. The word "sentence" has troubles enough already. A fresh, neutral sounding name would be better. These units might be christened "minimal terminable units," since they would be minimal as to length, and each would be grammatically capable of being terminated with a capital letter and a period. For short, the "minimal terminable unit" might be nicknamed a "T-unit."[1]

It should be noted further that so (from and so) may be used as a coordinating conjunction as both Hunt[2] and Loban[3] indicate.

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[1]Hunt, Grammatical Structures, pp. 20-21.

[2]Ibid., p. 11.

[3]Walter Loban, The Language of Elementary School Children, (Champaign: NCTE, 1963), p. 14.

In this study the procedures used in counting the variables derived from Christensen's hypothesis can be explained only after there is a definition of the variables themselves. Christensen gives the following definition.

> Free modifiers . . . are modifiers not of words but of constructions, from which they are set off by junctures or punctuation. Grammatically, they are loose or additive or nonessential or nonrestrictive. The constructions used are prepositional phrases; relative and subordinate clauses, noun, verb, adjective, and adverbial phrases or clusters; and, one of the most important, verbid clauses or absolutes.[1]

Christensen in the same article gives an example to "help make it clear what free modifiers are and what they look like in context." In his example the free modifiers have been put in italics:

> These countries were once the center of the storm, and *as the Curtain was coming down* their hotels were filled with correspondents, *pushing and crowding each other, playing what is known in the trade as journalistic boomerang (you take a rumor, throw it out, and by the end of the day it has touched so many other people that it comes back to you fresh and vital, passed on by people you haven't even spoken to)*. The storm is now in Saigon, *where several hundred correspondents cover the story of whether that country will or won't go Communist*. Their editors are in a sense right, for there is little news from Eastern Europe--*some change, some restlessness, but little hint of revolution.* These are small countries; you can take all the political developments in the Polish Communist party in one year, and *perhaps* it will be one story. Yet for me it was an extraordinary time. My colleague David Binder, *who shared the lower half of the tier, the Balkans*, with me, agreed emphatically. *When the Times wanted to transfer him to Bonn, a bigger story and a bigger bureau*, he went relunctantly, *leaving what he had come to call 'my people.'* We shared, *I think*, the same feeling for being a reporter there, *of watching and in a way being involved in the simple yet moving business of the daily struggle of these people with the state. Cast in the most unnatural circumstances*, they go on in the struggle relentlessly, *living lives with an infinite degree of moral complexity, daily honor, daily dishonor.*[2]

---

[1] Christensen, "Problem," p. 577.

[2] *Ibid.*

Christensen discusses position in free modifiers as follows:

> In the initial position all words and constructions that stand before the noun phrase that is the subject are free modifiers regardless of punctuation; position alone marks them as free--e.g., perhaps and for me before it in two of the sentences. Every medial or final word or construction that is sent off is a free modifier.[1]

In personal correspondence, Professor Christensen has indicated more stringent definitions of positions as follows:

initial: before the base clause

medial: within the base clause

final: after the base clause

Christensen defines the base clause of a T-unit as "what is left when the free modifiers are subtracted." Examples may clarify. Christensen gives the following example in his Rhetoric Program. It is from Eudora Welty:

> Stretching away, the cotton fields,
> INITIAL
>
> slowly emptying , were becoming the color
> MEDIAL
>
> of the sky, a deepening blue so intense
> FINAL
>
> that it was like the darkness itself.[3]

The base clause is thus: The cotton fields were becoming the color of the sky. Student examples follow:

Initial:

> When he got inside, he found that the roof leaked
> INITIAL
>
> in a few places.

---

[1]Christensen, "Problem," p. 578.

[2]Ibid.

[3]Teacher's Manual, p. 5

Medial:

But time, like everything else, had come.

MEDIAL

Final:

The Sharks were at the end of the alley,

the place of the rumble.

FINAL

As with the T-unit, here too the investigator had to do the punctuation and partitioning. It was frequently a matter of deciding whether or not a given phrase was restrictive or nonrestrictive. If nonrestrictive, the phrase was a free modifier.

In the counting of free modifiers, the positions were noted first. Each instance was recorded as one instance of a particular position. Within instances the number of words was recorded simply as the number of words in the free modifier.

In this study, the final variable derived from Christensen's hypothesis was the intra T-unit coordination. This variable may be defined simply as the compounding of elements "lesser" than the independent clause. In the sentence, "John and Mary sang," the compound subject, John and Mary, is one instance of intra T-unit coordination; there are three words in this T-unit coordination: (1) John, (2) and, and (3) Mary. This study focused on the number of words and the number of instances based on the following procedures:

1) Only words dependent on the coordinated structures were included. For example:

a red and blue cap = 3 words; a and cap were not included because they are not part of the coordination, red and blue.

a red coat and a blue cap = 7 words

a red and a blue are included because they are dependent on the coordinated nouns, coat and cap.

They were noisy and happy in the bus. = 3 words.

They were noisy in the bus and happy to get out. = 9 words.

2) When there were coordinations within coordinated structures, each was listed and counted; thus some words were counted twice. For example:

Instances (from the outer coordination, of the verbs.)	(1)	Words	(12)	(The bears) raid the table tops and garbage cans and leave a horrible mess.
Instances	(1)	Words	(6)	the table tops and garbage cans
Total Instances	(2)	Total Words	(18)	

All the variables (T-unit length, free modifiers, and inta T-unit coordinations) counted thus were independent observations. Both free modifiers and intra T-unit coordinations were included in the T-unit word counts of free modifiers. The following analysis of a student theme will serve as an example.

Fig. 1--Analysis of the Middle 208 Words from a Student Theme, Grade 8.

The free modifiers are underlined. The intra T-unit coordinations are enclosed in parentheses. The word counts are entered at the left. The direct quotations and interior monolog are entered, but slashed out. The capitalization, spelling, and punctuation have been altered where necessary.

Number of Words			
Free modifiers: I=Initial; M=Medial; F=Final	T-unit length	Intra T-unit coordinations	
F=12	16		1. There was a thunderstorm, a perfect night for what turned out to be a disastrous initiation.
	21	19	2. We were (to leave at 10:30 during the first stormy night and be equipped to sleep in that run-down decrepit house).
	10	9	3. We (arrived there and proceeded to open the creaky door).
I=5	10		4. When it was half open, I flung my head inside.
	6	3	5. (Kathy and I) entered very precautiously.
	10		6. All the shabby, neutral-colored chairs were covered with spider webs.
	6		7. The tables were broken beyond repair.
	0		"Wh/at a/ me/ss!"
	9	7	8. We inspected (the first floor and then the second).
	11		9. We decided to sleep on some rusty cots in one bedroom.
	10		10. I started to fall asleep when I heard a noise.

Number of Words			
Free modifiers: I=Initial; M=Medial; F=Final	T-unit length	Intra T-unit coordinations	
	13		11. I started to investigate downstairs when I heard a thud in the bedroom.
	4		12. I practically flew upstairs.
I=1	12		13. Well, my heart skipped a beat when I discovered Kathy was gone.
I=1	9	7	14. Well, I (left the house and called the police).
	13	12	15. They (thought I was a prankster and said they'd investigate in the morning).
	15	14	16. I (went back to the spooky house and searched every room on the first floor).
I=1	11	8	17. Then, I heard (a thumping on the stairs and more noises).
	0		"O/h, Go/d, Wh/y? I'/m goi/ng cra/zy. I'l/l bur/st wi/th fe/ar," I/ crie/d ou/t,
	7	3	18. but my voice was (shaky and weak).
	3		19. I ran upstairs,
M=6	12		20. and there, in the middle of the hall, was the whole club.
TOTALS			
26	208	82	

From the example, the predictor variables may be summed as the following indicates.

Total number of words analyzed 208

Number of T-units 20

1 Mean T-unit length in number of words 10.40

2. Number of words in free modifiers, final position 12

3. Number of instances of free modifiers, final position 1

4. Number of words in intra T-unit coordinations 82

5. Number of instances of intra T-unit coordinations 9

6. Total number of words in free modifiers (total=initial+medial+final positions) 26

7. Total number of instances in free modifiers (total=initial+medial+fiual positions) 6

Predictor Variables in the Study

Fig. 2--Summation of Variables from Sample Student Theme, Grade 8

C. The Predictor Variables

The predictor variables and their code names are listed below. It was necessary to use no more than four letters in coding.

1. MTUL = Mean T-Unit Length

2. WFFO = Number of Words in Free modifiers, Final position Only[1]

3. IFFO = Number of Instances of Free modifiers, Final position Only

4. WCOR = Number of Words in intra T-unit COoRdinations

5. ICOR = Number of Instances of intra T-unit COoRdinations

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[1]Christensen considers three positions for free modifiers: initial, medial, and final; that is, before, inserted into, and after the base clause. Free modification in the final position is given special attention in the narrative mode, the mode considered here. It constitutes a separate index, then, in addition to the other indexes.

6. TFAX = Total number of words in Free modifiers, All positions
(Total=initial and medial and final positions)

7. TIFA = Total number of Instances in Free modifiers All positions.
(Total=initial and medial and final positions)